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ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT KENTUCKY 40601
www.kentucky.gov

June 6, 2011

Madison Co. Utilities District
Attn: Mr. John Clark, Manager
P.O. Box 670
Richmond, KY 40475

RE: Madison County Utilities
AI # 34008
Madison County Water System
Improvements Phase III

Dear Mr. Clark:

Thank you for submitting a Green Project Reserve (GPR) business case for your proposed project, funded through the Drinking Water State Revolving Fund (DWSRF). A provision of the 2011, DWSRF funding cycle requires that to the extent there are eligible project applications; states shall use 20% of its Drinking Water State Revolving Fund capitalization grant for green infrastructure projects. These projects are intended to address water and energy efficiency improvements or other environmentally innovative activities. The Kentucky Division of Water (KY DOW) has reviewed the GPR business case for the Madison County Water System Improvements Phase III project and has found the justification to be acceptable. If the scope of the project is altered in any way to exclude the GPR eligible components, Madison County Utilities shall submit the changes in writing to the KY DOW and receive prior approval in writing before proceeding with construction.

We look forward to working with you in finalizing your drinking water infrastructure project. If you have any questions regarding this correspondence, please contact me at (502) 564-3410, ext 4832.

Sincerely,

Greg Goode, P.E.
Kentucky Division of Water

Cc: Kerry Odle, P.E., CMW, Inc.
DWSRF File

GREEN COMPONENT SUPPLEMENT TO THE 2011 CWSRF AND DWSRF CALL FOR PROJECTS

During the 2011 Call for Projects held October 2009 through March 2010, the below referenced project was identified as "green" or included "green" components. In order to determine the green costs and whether or not the project is considered categorically green or whether a business case will be required, the Division of Water needs additional information.

Attached to this email is the current Green Guidance for the 2011 funding cycle. Green projects are classified as projects that address: Water Efficiency, Energy Efficiency, Green Infrastructure or Environmentally Innovative Activities. The guidance discusses each of these categories and the components or types of projects that would require a business case versus a classification of categorically green.

Please review the attached guidance and complete the below information. **In order for green merits of the project to be included as such on the 2011 Priority List, this form must be completed and returned via email to Division of Water no later than May 17, 2010.** Questions or completed forms should be submitted to the Division of Water contacts noted below:

Clean Water SRF
Anshu Singh
Anshu.singh@ky.gov
502-564-3410 ext. 4805

Drinking Water SRF
Amanda Yeary
Amanda.yeary@ky.gov
502-564-3410 ext. 4839

Note: An itemized list of components and their related costs are all that is required at this time.

Applicant (Must be governmental entity): Madison Co. Utilities District

Project Name: Madison Co. Improvements- Phase III

WX / SX Number (required): WX21151033

Please provide contact information for questions relating to this form only:

Contact Name: Kerry Odle, P.E.
Email: kodle@cmwaec.com
Telephone: 859 254-6623 or 859 314-5165

1) Based on the attached guidance, do you consider your project a 100% green project?

Yes X No

- 2) Based on the attached guidance, please categorize your green components into the identified categories and provide a listing of the green components and an estimation of related costs at this time:

a. Water Efficiency \$ 1,190,225.00 (total)

Breakdown of components included with related costs:

Component	Cost
Measured water loss in this area is 28%; we estimate that by replacing these leaking lines this can be reduced to 5%.	<u>\$1,190,225.00</u>
_____	_____
_____	_____

b. Energy Efficiency \$ _____ (total)

Breakdown of components included with related costs:

Component	Cost
_____	_____
_____	_____
_____	_____

c. Green Infrastructure \$ _____ (total)

Breakdown of components included with related costs:

Component	Cost
_____	_____
_____	_____
_____	_____

d. Environmentally Innovative Activities

Breakdown of components included with related costs:

Component	Cost
_____	_____
_____	_____
_____	_____

3) Total Project Cost related to "green" components (all categories): \$ 1,190,225.00

**Madison County Utilities District
Water System Improvements Phase III
DWL1158**

Green Project Reserve (GPR) – Water Efficiency Business Case

Summary

- This project involves the replacement of 4.66 miles of deteriorating, frequently breaking, leaking, inadequately sized water lines with new water lines. The new water lines are to meet the Kentucky Division of Water requirements.
- Replacing these lines will eliminate the loss of 1,488,659 CF of water per year, which is equal to 7.95% of the total water sold in the College Hill and Airport service areas and 29.43% of the total water lost in the same area in 2010.
- DWSRF Loan amount is \$940,225.
- Water saving (green) portion of loan is 100%.

Background

- This project includes the construction of a new 12-inch railroad bore at Red House Road to replace a deteriorating, undersized 4-inch waterline.
- This project includes the construction of a new 8-inch under the creek at Red House Road to replace an exposed waterline that frequently breaks.
- This project includes the construction of 400 feet of new 6-inch at Waco and College Hill to replace a deteriorating, leaking 4-inch waterline that frequently breaks.
- This project includes the construction of a new 6-inch under the creek at the Concord Road crossing to replace an exposed waterline that frequently breaks.
- This project includes the construction of 11,800 feet of new 8-inch along KY Hwy 52 and Waco Loop to replace a deteriorating 4-inch waterline.
- This project includes the construction of 8,200 feet of new 6-inch along Fike Road to replace a deteriorating 4-inch waterline.
- This project includes the construction of 3,800 feet of new 6-inch along Waco Loop to Drowning Creek to replace a deteriorating 4-inch waterline.

Water Loss Calculations

- In 2010, the water purchased by the Madison County Utilities District to serve the College Hill and Airport service areas was 23,785,400 CF. In 2010, the water sold by the Madison County Utilities District to the College Hill and Airport customers was 18,727,654 CF. That results in a total water loss of $(23,785,400 - 18,727,654 =) 5,057,746$ CF in the College Hill and Airport service areas in 2010. In other words 27% of the water sold for the College Hill and Airport service areas was lost in 2010.
- The total amount of problem lines in the College Hill and Airport service areas is 9.97 miles. This project will replace 4.66 miles of the problem lines. The remaining $(9.97 - 4.66 =) 5.31$ miles of problem water lines are to be repaired in concurrent and subsequent projects.

- The percentage of problem water lines repaired in the College Hill and Airport service areas by this project is $(4.66 \text{ miles} / 9.97 \text{ miles})(100) = 46.74\%$.
- The total current water loss in this project area is 46.74% of 5,057,746 CF, which is equal to 2,363,990 CF.
- Once the water lines are replaced, we expect the loss in the project area to be reduced from 27% to 10% of the water sold. So the total water loss post construction in the project area is 10% of 46.74% of the College Hill and Airport service areas of the 18,727,654 CF total water sold, which is equal to 875,331 CF.
- Therefore, we expect this project to eliminate the loss of $(2,363,990 \text{ CF} - 875,331 \text{ CF}) = 1,488,659 \text{ CF}$ of water per year.

Conclusion

- We believe this project meets the Green Project Reserve water efficiency criteria, as it results in a large amount of water loss reduction and inhibits water main breaks at two (2) creek crossings.
- The cost for the Madison County Utilities District to purchase water is \$2.17 per 100 CF. With the 1,488,659 CF of water loss reduction per year, this project would save $(1,488,659 \text{ CF})(\$2.17 / 100 \text{ CF}) = \$32,303.90$ per year.
- This project has the added benefit of eliminating potential health hazards associated with waterborne pathogens entering the water system.
- Also, this project has the added benefit of reducing the energy required by the drinking water system, as there will be less water necessary for treatment and transportation.
- Finally, this project has the added benefit of reducing fuel consumption by the Madison County Utilities District, as the District will use less equipment due to fewer leaks and breaks.